

REMARKS

Applicants reply to the Office Action dated June 22, 2010, within three months. Claims 1-4 were pending in the application, and the Examiner rejects claims 1-4. Support for the amendments may be found in the originally-filed specification, claims, and figures. No new matter has been introduced by the amendments. Reconsideration of this application is respectfully requested.

The Examiner rejects claim 1 under 35 USC 112 as being indefinite. In particular, the Examiner asserts that "defining data from a start location of the data stored in the memory circuit to a location corresponding to a next writable address as a first data portion" and "defining data from the location corresponding to the next writable address to an end location of the data stored in the memory circuit as a second data portion" is unclear. Specifically, the Examiner asserts that claim 1 is unclear as the memory circuit and the write-once recording medium have different address systems, and that it cannot be understood how a data portion can be defined using two different address systems before the recording has taken place. The Examiner states that "It is unclear how a "data portion" (i.e., data stored within an address range) can be defined using **two separate address systems** on two separate devices when **neither of the devices** have the same data recorded yet" (*emphasis added*). Applicants respectfully disagree with these rejections, but Applicants amend claim 1 (without prejudice or disclaimer) in order to further clarify the patentable aspects of certain claims and to expedite prosecution.

Applicants respectfully assert that the Examiner may be mis-understanding the claim elements. Claim 1 recites that the first data portion is defined "...from a start location of the data **stored** in the memory circuit..." (*emphasis added*). Applicants respectfully assert that it is not proper to state that "neither of the devices have the same data recorded yet" at the point of defining the data portions, as the claim language clearly requires that the data is **already stored** (past tense) in the memory circuit before the defining of the data portions takes place. Claim 1 also recites that the second data portion is defined "from a location **corresponding** to a next writable address" (*emphasis added*). That is, the next writable address has a corresponding location in the memory, such that the corresponding address in the memory can be defined as start-point of the second portion in the memory circuit. Therefore, one skilled in the art could easily understand from the recitation of claim 1 that data portions could be defined in the data

stored in the memory by the drive control based on the correspondence between the next writable address in the write-once recording medium and the corresponding location in the memory.

Nonetheless, to expedite prosecution, Applicants amend claim 1 to overcome the Examiner's assertion that claim 1 cannot be understood as to how a first data portion and a second data portion can both correspond to a next writable address in a write-once recording medium. In particular, Applicants amend claim 1 to recite that the first data portion is defined "...to an end-point before a location corresponding to a next writable address...". Applicants thus further clarify that only one data portion is recorded on the next writable address, as amended claim 1 now recites that the first data portion is defined "to" an end point **before** the next writable address, and that second data portion is defined "from" the next writable address.

The Examiner further alleges that "It is unclear how both the "first data portion" and the "second data portion" can both "correspond to the next writable address" since only one distinct data can be recorded to one distinct address on a write-once medium." Applicants assert that amended claim 1 addresses this concern in its recitation of "...defining data from a start location of the data stored in the memory circuit to an end-point before a location corresponding to a next writable address as a first data portion..." (emphasis added).

Applicants assert that the amendment is supported by at least the disclosure of Figs. 39 and 40 and paragraphs [00811]-[00814] of the originally filed application. Particularly, paragraph [0813] recites that the recording of data D2 (which corresponds to the "first data portion") is a pseudo-overwrite recording of PSN=a0 (i.e., the area between a0 and a1). As can be seen from Fig. 40, the dotted line indicating location a1 precedes the solid black line indicating the next writable address. It can therefore be clearly understood that the first data portion ends before the next writable address, and does not include it.

Applicants assert that such amendment adequately addresses the subject clarity rejection in that it clarifies that the first data portion is defined to a first location before a second location corresponding to a next writable address. The Examiner's interpretation of the first data portion of claim 1 as including the location corresponding to the next writable address is thus excluded, thus clarifying that only one data portion (the second data portion) is defined "...from the next writable address...".

The Examiner next rejects claims 2-4 under 35 USC 103(a) as being unpatentable over Hwang, et al., US Publication No. 2004/0185216 ("Hwang") in view of Park, et al., US Publication No. 2004/0076049 ("Park"). Applicants respectfully traverse.

Applicants previously amended claim 2 to include the feature of "determining a specific location ... where access time from the recording location of the replacement cluster is less than or equal to a predetermined time" in response to the Park reference cited in the previous Office Action. This feature was also included in new claim 4, and claim 3 depends from claim 2. However, in the current Office Action, the Examiner admits (on page 5, paragraph 5) that Park does not teach the above-quoted feature of claim 2. To compensate for this deficiency in Park, the Examiner relies on the disclosure of Hwang. Applicants assert that Hwang does not disclose the above-described feature of claims 2, 3, and 4.

Claim 2

Pending independent claim 2 is directed towards a drive apparatus that performs a sequential recording for a write-once medium. Specifically, with respect to the sequential recording, the pending claim 2 language recites at least the feature of:

"...when it is determined that the ECC cluster including the location specified by the recording instruction is replaced by a replacement cluster and the read-modify-write process is required, determining a **specific** location in the user data area where access time from the recording location of the replacement cluster **is less than or equal to a predetermined time** as a recording location at which the data is to be recorded..."
(*emphasis added*)

This feature is supported by at least the disclosure of paragraph [0876] of the originally filed specification.

Applicants respectfully disagree with the Examiner's arguments that Hwang discloses at least the above-quoted feature of claim 2. Paragraph [0010] of Hwang as cited by the Examiner describes a step of "...sequentially recording updated **predetermined information** in at least one update area...". The term "predetermined" here refers only to the **updated information to be recorded**, not to the **location at which it is to be recorded**. Likewise, the term "...update area..." in paragraph [0010] refers to a **fixed, static area** (as can be seen in Figs. 2a-4 of Hwang) for receiving updated information which pre-exists any recording on the recording medium. Furthermore, the "update area" refers to an **area** in which **only** update recordings can be made,

not to a **specific** location (as is required by the recitation of claim 1) at which the updated information itself is recorded in the updated information area.

This is especially clear from Fig. 4 of Hwang (as cited by the Examiner) which shows only (as is described in paragraph [0039]) that "...information is updated n times and sequentially recorded as A#1, A#2, ..., A#n ... in an update area A". That is to say, each of A#1, A#2, ...A#n and B#1, B#2, ...B#n is an **updated version** of the original information. None of them are **replacement recordings** (that is, true copies of the original made at a different location). Similarly, the updated information is recorded only in the order in which it occurs (i.e., A#2 follows A#1, A#3 follows A#2 etc.). There is no determination of a specific location based on the access time being less than or equal to a predetermined time.

In fact, while Hwang does disclose the recording of replacement recordings in Fig. 10 and paragraphs [0057]-[0073], these replacement recordings are recorded sequentially in order of occurrence in spare area B, separate to the update recordings. No update recordings are shown as occurring anywhere but in the update areas.

Since the location of the replacement recording and update recordings in their respective areas are determined only by the order in which they take place relative to the other replacement/update recordings, the location of the update recordings cannot be said to be determined by the location of (and hence access time from) the replacement recordings. Instead, the update recordings in Hwang are made at a distance and access time from the replacement recordings are determined by the sequence in which the update recordings and the replacement recordings take place - which could be any conceivable distance/time.

The claimed invention is able to advantageously reduce access times and perform faster replacement recordings, as is recited in at least paragraph [0880]-[0890]. The invention of claim 2 achieves this by determining a specific location in the user data area, where access time from the recording location of the replacement cluster is less than or equal to a predetermined time as a recording location at which the data is to be recorded, thus guaranteeing that the recording location of the RMW operation is close to the replacement cluster.

In contrast, Hwang only discloses performing a sequential recording of replacement recordings and update recordings in the order in which they occur, with replacement recordings and update recordings taking place in separate areas. Hwang therefore does not achieve the advantages of the invention of claim 2 as it does not record update recordings where access time

from the recording location of the replacement cluster is less than or equal to a predetermined time, but instead performs them sequentially in separate areas.

Moreover, one skilled in the art would not be motivated to modify the disclosure of Hwang to create update recordings where access time from the recording location of the replacement cluster is less than or equal to a predetermined time. This is because (as is recited in paragraphs [0067]-[0073]) Hwang teaches simplifying the estimating of a latest update recording position by counting the number of times an update recording has been performed, with a nth update recording being at the nth memory block in the relevant update area. One skilled in the art would not be motivated to modify Hwang so that replacement recordings and an update recording could take place in the same area as this would render the system of Hwang incapable of achieving this simplification. This is because such a modification would mean that the nth update recording would no longer necessarily be on the nth memory block in the relevant area, as memory blocks between update recordings could also be occupied by replacement recordings.

As such, Applicants respectfully assert that Hwang and Park, both alone and in combination, do not disclose or contemplate at least "...when it is determined that the ECC cluster including the location specified by the recording instruction is replaced by a replacement cluster and the read-modify-write process is required, determining a **specific** location in the user data area where access time from the recording location of the replacement cluster is **less than or equal to a predetermined time** as a recording location at which the data is to be recorded..." (*emphasis added*), as recited in claim 2.

Claim 3

The Examiner asserts that "... the recording location at which data is to be recorded is adjacent to the recording location of the replacement cluster" (as recited in claim 3) is disclosed by Fig. 2A of Hwang. Particularly, the Examiner states that the lead-in area of Fig 2a corresponds to the recording location of the replacement cluster. Applicants respectfully disagree with the Examiner and traverse. Such feature is supported by at least the disclosure of paragraph [0876] of the originally filed specification.

Applicants assert that paragraph [0031] of Hwang specifically states with respect to Fig. 2A that the "...user data area is an area where user data is recorded, and **the spare area** [i.e., the area following the user area and not adjacent to the lead-in] is a **replacement area** for the user

data...". In other words, in Fig. 2a, replacement recordings take place in the spare area, not in the lead-in (which Figs. 3 and 4 show as containing the update recordings).

Furthermore, Applicants assert that, since the update recordings of Hwang are conducted sequentially in the lead-in, the actual location in which the update recording takes place in Hwang is not "adjacent to the recording location of the replacement cluster", but in sequential order from the start of the lead-in. Even if the lead-in and the spare area were adjacent, Applicants assert that this would still not disclose the feature of an RMW recording of a replacement recording being made adjacent to the replacement recording of claim 3. This is because the replacement recordings of Hwang would still be separated from their respective update recordings by the remaining empty memory blocks and previously used memory blocks of both the spare area and the update area, as can be seen in Figs. 4 and 10.

As such, Applicants respectfully assert that Hwang and Park, both alone and in combination, do not disclose or contemplate at least "... the recording location at which data is to be recorded is adjacent to the recording location of the replacement cluster," as recited in claim 3. Moreover, claim 3 depends from independent claim 2, so Applicants assert that claim 3 is patentable for the same reasons as set forth for differentiating claim 2, in addition to its own unique features.

Claim 4

Applicants assert that Park does not disclose at least "**...when it is determined that the ECC cluster including the location specified by the recording instruction is replaced by a replacement cluster and the read-modify-write process is required**, determining a specific location in the user data area where access time from the recording location of the replacement cluster is less than or equal to a predetermined time as a recording location at which the data is to be recorded..." (*emphasis added*), as recited by independent claim 4. This is supported by at least the disclosure of paragraphs [0875]-[0880] of the originally filed specification, which describe the order in which the steps of the present invention are performed. This order is also present in the pending claim language, which requires controlling of the recording/reproduction section to record the data at a determined recording location. Accordingly, the recording location must be first determined, and as stipulated by the claim language, this determination is

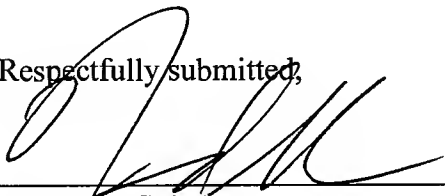
performed when it is determined that the RMW process is required, that is, **before** the RMW process takes place.

In contrast, Park is limited to only the writing of management information (including location information) **after** the recording takes place, as can be seen from paragraph [0043] of Park. Similarly, Hwang (in paragraph [0039]) describes that the location information AA#1 is recorded **after** the update recording A#n is made. This differs from the subject matter of claim 4, which requires that the RMW recording location is determined **before** the RMW recording takes place, thus achieving reduced access time and high-speed replacement recording, as is described in paragraphs [0880]-[0881] of the originally filed specification.

As such, Applicants respectfully assert that Hwang and Park, both alone and in combination, do not disclose or contemplate at least "...**when it is determined that** the ECC cluster including the location specified by the recording instruction is replaced by a replacement cluster and **the read-modify-write process is required**, determining a specific location in the user data area where access time from the recording location of the replacement cluster is less than or equal to a predetermined time as a recording location at which the data is to be recorded..." (*emphasis added*), as recited in independent claim 4.

In view of the above remarks, Applicants respectfully submit that all pending claims properly set forth that which Applicants regard as their invention and are allowable over the cited references. Accordingly, Applicants respectfully request allowance of the pending claims. The Examiner is invited to telephone the undersigned at the Examiner's convenience, if that would help further prosecution of the subject application. The Commissioner is authorized to charge any fees due to Deposit Account No. 19-2814.

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Respectfully submitted,


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